

wherein the third and fourth flexure are bendable in response to the first joint moving in the first direction to change the second angle with respect to the first direction and thereby move the first and second joints in the second direction.

### **REMARKS**

By this Amendment, Applicant has amended claim 59. Claims 1-72 are pending in this application. Claims 1, 35, 57, and 59 are independent claims. Claims 1-56 are withdrawn from consideration by the Examiner.

As an initial matter, Applicant traverses the Examiner's continued insistence on maintaining the Restriction Requirement dated September 4, 2002. As respectfully pointed out in the Response to Restriction Requirement dated September 30, 2002, the Examiner has failed to demonstrate that the alleged combination and subcombination are distinct.

Applicant respectfully submits that the Examiner is applying an incorrect standard in determining the propriety of requiring restriction between a combination and a subcombination. In the Restriction Requirement, the Examiner required restriction under 35 U.S.C. § 121 between:

- Group I - Claims 1-56, characterized by the Examiner as being drawn to an exposure apparatus and a device for positioning a wafer table; and
- Group II - Claims 57-72, characterized by the Examiner as being drawn to a structure for moving a wafer table.

After characterizing Groups I and II, respectively, as a combination and a subcombination, the Examiner alleged that "the combination as claimed does not

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require the particulars of the subcombination as claimed because the combination is independently functional and deemed to be useful to expose an image formed on reticle on a substrate." Restriction Requirement, paragraph 2. In response, Applicant argued that the alleged combination as claimed does require the particulars of the alleged subcombination as claimed. In support of this argument, Applicant respectfully pointed out that each of independent claims 1 and 35 belonging to Group I recites all of the particulars of independent claim 57 belonging to Group II. In the Office Action, the Examiner refuted this argument by alleging that claim 57 is silent with respect to some of the technical features recited in claim 1.

Applicant respectfully submits that the correct standard for determining the propriety of requiring restriction between a combination and a subcombination is whether the combination as claimed requires all of the particulars of the subcombination as claimed, not the other way around. See M.P.E.P. § 806.05(c). Consistent with this correct standard, M.P.E.P. states that "[w]here the relationship between the claims is such that the separately claimed subcombination  $B_{sp}$  constitutes the essential distinguishing feature of the combination  $AB_{sp}$  as claimed, **the inventions are not distinct and a requirement for restriction must not be made**, even though the subcombination has separate utility." (Emphasis added.) § 806.05(c). In this application, both independent claims 1 and 35, characterized by the Examiner as a combination, recite all of the particulars of independent claim 57, characterized by the Examiner as a subcombination. Namely, both independent claims 1 and 35 recite "a first joint . . . a second joint . . . a diagonal member . . . and a flexure," recited in

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independent claim 57. Although the Examiner's point that claim 1 recites features not recited in claim 57 is correct, this point is irrelevant in determining whether a restriction requirement is proper. A combination, of course, recites one or more features not recited in a subcombination. This point, however, has no bearing whatsoever in determining whether a restriction requirement between the combination and the subcombination is proper.

Accordingly, Applicant respectfully requests that the Examiner withdraw the Restriction Requirement dated September 4, 2002 and examine claims 1-56 on their merits.

The Examiner indicated that claims 59-72 contain allowable subject matter. See Office Action, paragraph 9. Applicant appreciates the Examiner's early indication of allowable subject matter. By this Amendment, Applicant has rewritten claim 59 in independent form. Accordingly, independent claim 59 as well as its dependent claims 60-72 are in condition for allowance.

The Examiner objected to the abstract of the disclosure. See Office Action, paragraph 3. In response, Applicant has amended the abstract of the disclosure so that it does not use the term "comprises."

In the Office Action, the Examiner rejected claims 57 and 58 under 35 U.S.C. § 102(e) as being anticipated by Andeen et al. (U.S. Patent No. 6,355,994) and rejected claims 57 and 58 under 35 U.S.C. § 103(a) as being unpatentable over Gran et al. (U.S. Patent No. 6,029,959).

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Applicant respectfully traverses the rejection under 35 U.S.C. §102(e) because Andeen et al. fails to disclose all of the elements recited in the claims. In order to properly anticipate Applicant's claimed invention under 35 U.S.C. § 102(e), each and every element of the claim in issue must be found, either expressly described or under principles of inherency, in a single prior art reference. Furthermore, "[t]he identical invention must be shown in as complete detail as is contained in the . . . claim." See M.P.E.P. § 2131 (8th ed. 2001), quoting *Richardson v. Suzuki Motor Co.*, 868 F.2d 1126, 1236, 9 U.S.P.Q.2d 1913, 1920 (Fed. Cir. 1989). Finally, "[t]he elements must be arranged as required by the claim." M.P.E.P. §2131 (8th ed. 2001), p. 2100-69.

For example, Andeen et al. fails to disclose a structure for moving a wafer table including, among other things, "a flexure . . . bendable in response to the first joint moving in the first direction to change the angle with respect to the first direction and thereby move the second joint in the second direction," as recited in independent claim 57.

Applicant respectfully requests that the Examiner clearly identify the structures and the directions in Andeen et al. that the Examiner is interpreting as the recited "first joint," "second joint," "first direction," and "second direction." The Examiner alleged that Andeen et al. discloses "a first joint movable in first direction (see col. 2, line 55), and a second joint (see col. 2, line 57) for moving the wafer in second direction (see fig. 2A)." Office Action, paragraph 6. As shown in Fig. 2A, Andeen et al. discloses a platform 240, raising members 285, legs 270, first attachment members 230 coupled to the raising members 285, and second attachment members 260 by which the legs 270 and

the platform 240 are coupled to a bottom platform surface 250. See col. 4, line 49 through col. 5, line 6. Andeen et al. summarizes these disclosures on col. 2, line 55-59, by referring to "a first attachment member attached to the raising member . . . a second attachment member attached to a top end of the leg and the second attachment member attached to the bottom of platform surface." Andeen et al. further discloses that "[t]he platform movement members [290] provide controllable planar motion of platform 240 relative to frame 210," and that the motion of the raising members 285 is "allowed in the z direction and constrained in all other directions." See col. 6, lines 26-28; col. 9, lines 56-59; and Fig. 6A.

Based on these disclosures in Andeen et al. and the Examiner's statement, Applicant assumes that the Examiner is interpreting the raising members 285 and the platform 240 of Andeen et al., respectively, as the recited "first joint" and "second joint." Applicant further assumes that the Examiner is interpreting z direction associated with the movement of the raising members 285 and x or y direction associated with the movement of the platform 240 of Andeen et al., respectively, as the recited "first direction" and "second direction." Applicant believes that no other reasonable interpretation is plausible. Accordingly, Applicant offers the following remarks assuming the Examiner is interpreting Andeen et al. as described above. Nevertheless, if the Examiner is interpreting Andeen et al. differently than Applicant assumes, Applicant respectfully requests clarification regarding the structures and the directions of Andeen et al. that the Examiner is interpreting as the recited "first joint," "second joint," "first direction," and "second direction."

Based on these assumptions, Andeen et al. fails to disclose that the first attachment member 230 is bendable in response to the z movement of the raising members 285 to move the platform 240 in x or y direction. Andeen et al. discloses that the first and second attachment members 230 and 260 may have either two or three degrees of freedom of movement and they are flexural joints in preferred embodiments. See col. 11, lines 26-31. In addition, Andeen et al. discloses that the raising members 285 "compensate" an elevation change of the platform 240 resulting from the platform movement members 290 articulating the platform 240. See col. 9, line 24-32. Nowhere in Andeen et al., however, is it disclosed that the first attachment member 230 is bendable in response to the z movement of the raising members 285 to move the platform 240 in x or y direction.

For at least this reason, Andeen et al. fails to anticipate independent claim 57. For at least the same reason, Andeen et al. fails to anticipate independent claims 1 and 35.

Applicant also respectfully traverses the rejection under 35 U.S.C. § 103(a) because the Examiner has failed to establish a *prima facie* case of obviousness. To establish a *prima facie* case of obviousness under 35 U.S.C. §103(a), each of three requirements must be met. First, the references, taken alone or combined, must teach or suggest each and every element recited in the claims. See M.P.E.P. § 2143.03 (8th ed. 2001). Second, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to combine the references in a manner resulting in the claimed invention. Third,

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a reasonable expectation of success must exist. Moreover, each of these requirements must "be found in the prior art, and not be based on applicant's disclosure." M.P.E.P. § 2143 (8th ed. 2001).

For example, Gran et al. fails to disclose or suggest a structure for moving a wafer table including, among other things, "a flexure . . . bendable in response to the first joint moving in the first direction to change the angle with respect to the first direction and thereby move the second joint in the second direction," as recited in independent claim 57.

Again, Applicant respectfully requests that the Examiner clearly identify the structures and the directions in Gran et al. that the Examiner is interpreting as the recited "first joint," "second joint," "first direction," and "second direction." The Examiner alleged that Gran et al. discloses "a first joint movable in the first direction and a second joint movable in a second direction to move a table (10) in the second direction (see fig. 1) [and] a diagonal member (14) connected to the first and second joints." Office Action, paragraph 8. As shown in Fig. 1, Gran et al. discloses a base platform 12, a payload platform 10, and three pairs of semi-active isolators 14, each pivotally mounted to the base platform 12 and the payload platform 10. See col. 4, line 42-65. Gran et al. further discloses that "each pair of isolators 14 addresses motion in the translational direction,  $X_i$ , along their common line of action and in the rotation direction  $2\theta_i$ , about an axis  $n_i$  normal to their common plane." Col. 6, lines 21-24. In addition, Gran et al. discloses "translational vibratory motions in the base platform 12." Col. 7, lines 14-16.

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Based on these disclosures in Gran et al. and the Examiner's statement, Applicant assumes that the Examiner is interpreting the base platform 12 and the payload platform 10 of Gran et al., respectively, as the recited "first joint" and "second joint." Applicant further assumes that the Examiner is interpreting the direction of the translational vibratory motions in the base platform 12 as the recited "first direction" and the direction of the translational or rotational motion addressed by the isolators 14 as the recited "second direction." Applicant believes that no other reasonable interpretation is plausible. Accordingly, Applicant offers the following remarks assuming the Examiner is interpreting Gran et al. as described above. Nevertheless, if the Examiner is interpreting Gran et al. differently than Applicant assumes, Applicant respectfully requests clarification regarding the structures and the directions of Gran et al. that the Examiner is interpreting as the recited "first joint," "second joint," "first direction," and "second direction."

Based on these assumptions, Gran et al. fails to disclose or suggest that the fluxes 20 are bendable in response to the translational vibratory motions in the base platform 12 to move the payload platform 10 in the translational or rotational direction. Gran et al. discloses that "the three pairs of isolators 14.1, 14.2, and 14.3 together function semi-actively to minimize translation vibration in all three axes." Col. 6, lines 24-27. Furthermore, Gran et al. discloses that "translational vibratory motions in the base platform 12 will not induce pointing errors in the payload platform 10." Col. 7, lines 14-16. The payload platform 10 is therefore isolated from the translational vibratory motions of the base platform 12. Accordingly, contrary to the Examiner's apparent



allegation, Andeen et al. fails to disclose or suggest that the flexures 20 are bendable in response to the translational vibratory motions of the base platform 12 to move the payload platform 10.

For at least this reason, the Examiner has failed to establish a *prima facie* case of obviousness regarding the subject matter of independent claim 57. For at least the same reason, Gran et al. also fails to render obvious the subject matter of independent claims 1 and 35.

For at least the foregoing reasons, independent claims 1, 35, and 57 are in condition for allowance. Claims 2-34, 36-56, and 58 are also in condition for allowance at least by virtue of their dependency from respective allowable independent claims.

In view of the foregoing remarks, Applicant respectfully requests the consideration of claims 1-56 on their merits, the reconsideration of claims 57 and 58, and the timely allowance of all pending claims.

Attached hereto is a marked-up version of the changes made to the abstract and a claim by this Amendment. The attachment is captioned "**APPENDIX TO AMENDMENT OF MAY 12, 2003.**" Deletions appear as normal text surrounded by [ ] and additions appear as underlined text.

Please grant any extensions of time required to enter this response and charge any additional required fees to our deposit account 06-0916.

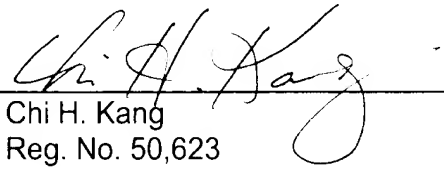
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Respectfully submitted,

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Dated: May 12, 2003

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**APPENDIX TO AMENDMENT OF MAY 12, 2003**

**Amendments to the Abstract:**

(Amended) A positioning device for positioning a wafer table and an exposure apparatus including the positioning device are disclosed. The positioning device [comprises] includes a housing, a piezoelectric actuator, and a structure for moving the wafer table in a second direction. The piezoelectric actuator has a first and second end. The first end is fixedly mounted to the housing and the second end is movable in a first direction in response to a change in voltage applied to the piezoelectric actuator. The structure [comprises] includes a first joint, a second joint, a diagonal member, and a flexure. The first joint is movable in the first direction in response to the second end of the piezoelectric actuator moving in the first direction. The second joint is movable in the second direction to move the wafer in the second direction. The diagonal member is connected to the first and second joints at an angle with respect to the first direction. The flexure connects the diagonal member to the first joint and is bendable in response to the first joint moving in the first direction to change the angle with respect to the first direction and thereby move the second joint in the second direction.

**Amendments to the Claim:**

59. (Amended) [The structure of claim 58, wherein the diagonal member connected to the first and second joints is a first diagonal member, the angle with respect to the first direction is a first angle, and the structure further comprises:] A structure for moving a wafer table, comprising:

a first joint movable in a first direction;  
a second joint movable in a second direction to move the wafer table in the  
second direction;  
a first diagonal member connected to the first and second joints at a first angle  
with respect to the first direction;  
a first flexure connecting the diagonal member to the first joint;  
a second flexure connecting the diagonal member to the second joint;  
a fixedly mountable base;  
a second diagonal members connected to the first joint and the base at a second  
angle with respect to the first direction;  
a third flexure connecting the second diagonal member to the first joint; and  
a fourth flexure connecting the second diagonal member to the base,  
wherein the first flexure is bendable in response to the first joint moving in the  
first direction to change the first angle with respect to the first direction and thereby  
move the second joint in the second direction,  
wherein the second flexure is bendable in response to the first joint moving in the  
first direction to maintain the movement of the second joint in the second direction, and  
wherein the third and fourth flexure are bendable in response to the first joint  
moving in the first direction to change the second angle with respect to the first direction  
and thereby move the first and second joints in the second direction.

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